Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

REVIEWS

Maryland Geological Survey—Pliocene and Pleistocene. WILLIAM BULLOCK CLARK, State Geologist, 1906. Pp. 285, 13 figs., 75 plates.

This is the third volume of a series of reports dealing with the systematic geology and paleontology of Maryland. It consists of two parts; the first, devoted to the Pliocene and Pleistocene deposits of Maryland, by G. B. Shattuck, with interpretations of the paleontological criteria by W. B. Clark, Arthur Hollick, and F. A. Lucas; the second, to the systematic paleontology of the Pleistocene, by Clarke, Lucas, Hay, Hollick, Sellards, and Ulrich. The report appears in the handsome dress for which the Maryland reports have become noted, and its many and excellent illustrations give it an attractive appearance.

The chief geological contribution is Dr. Shattuck's report of 136 pages. Besides introductory matter, this treats of four formations: the Lafayette, regarded as Pliocene, and the Sunderland, Wicomico, and Talbot, regarded as Pleistocene. The last three are relatively new terms introduced by Dr. Shattuck to designate the Pleistocene formations which he discriminates. They cover in a general way about the range of deposits embraced under the Columbia of McGee. All these formations, including the Lafayette, are regarded as sea deposits, in the main, and maps are given showing the supposed extent of the Lafayette, Sunderland, Wicomico, and Talbot seas. The formations are conceived to constitute a succession of terraces which are said to be limited by sea-cliffs. The assigned relations of these terraces are made clear by a series of ideal diagrams. There is a notable similarity in the structure and constitution of these formations as indicated by the descriptions and the photographs, all consisting mainly of clay, loam, sand, and gravel, with iron ore and other segregations. A significant feature is the imperfect assortment and the irregular arrangement of the material, which affects particularly the upper parts of the formations.

The surface movements supposed to be involved in the formation of this series of deposits are summarized as follows:

Subsidence and deposition of the Lafayette formation.
Elevation and erosion.
Subsidence and deposition of the Sunderland formation.

Elevation and erosion.
Subsidence and deposition of the Wicomico formation.
Elevation and erosion.
Subsidence and deposition of the Talbot formation.
Elevation and erosion.
Partial subsidence and deposition of the recent terrace.

Dr. Shattuck closes his report with the remark that "a study of the Coastal Plain deposits from the bottom to the top shows that the Atlantic sea-board has been repeatedly elevated when loaded and depressed when lightened. It would seem that some other theory than that of isostasy must be proposed for these movements" (p. 137).

Under the head of interpretation of the paleontological criteria, Dr. Clark remarks that all the fossils come from the Pleistocene, none from the Pliocene, i. e., the Lafayette. Fossil plants are found in all three of the Pleistocene formations—though imperfect in Wicomico—but the animal remains are confined to the latest or Talbot formation. In addition to the marine fossils in the Talbot formation, leaves, seeds, fruits, twigs, branches, logs, and stumps are preserved, some of which, according to Dr. Hollick, represent the accumulation of vegetation in place, in swamps, lagoons, or estuaries, and some represent transportation from adjacent localities. A few mastodons' teeth and other vertebrate remains have been found in the Talbot formation.

One cannot quite agree with Dr. Clark in saying that "the evidence of the fossils, as far as available, bears out the conclusions" previously set forth (p. 139), if by that is meant the marine origin of the Sunderland and Lafayette formations, as one would infer. The occurrence of marine fossils in some parts of the Talbot formation, the lowland, sea-border member of the Pleistocene deposits, rising from 10 to 45 feet above sea-level, while land vertebrates and plants are found in other portions, implies that the deposit was formed partly under marine conditions and partly under terrestrial.

The occurrence of a score of species of land plants and the absence of marine fossils in the Sunderland formation, which lies at higher levels, point as distinctly, so far as the evidence goes, to the terrestrial deposition of that formation. The absence of fossils in the Lafayette of Maryland, and the presence of land fossils in the Lafayette elsewhere, point in the same direction.

Concordantly with the fossil evidence, geologists critically familiar with the distinctions between marine and terrestrial formations will be disposed to question the marine character of such kinds of assortment and such structures as are shown in the several excellent photographs of sections of the upland formations. This questioning would be more pointed, if the chemical and physical state of these deposits had been more critically described. Question will also arise whether the little bluffs called sea-cliffs are really such. They look much like the terrace edges cut by low-gradient drainage. The digitate borders of the formations as mapped on Plate I, and on the restorations of the sea limits of the several stages as mapped on Plates XXVII–XXX, present strange alignments for the putative shores of the Atlantic. The little off-shore islands of soft material seem equally strange features. So also one looks in vain for the great sand-bars and strong beach deposits that are usually associated with ocean borders. If critical inquiry is turned to the elevations of the several parts of the upland formations, there appears to be a closer resemblance to the habitual hypsometry of terrestrial formations than to that of marine. One does not find in the report evidence of a clear perception of the methods of terrestrial deposition, such as are applicable to a region of this kind, and one is left with the suggestion that, when the region is critically studied with terrestrial criteria sharply in mind, the upland formations will be found to be typical terrestrial deposits, as implied by the fossil evidence. A part of the lowland Pleistocene is undoubtedly marine.

The systematic treatment of the paleontology of the Pleistocene deposits is an admirable feature, and will prove very serviceable in the study of the Pleistocene formations of the coast both to the southward and to the northward where warmer and colder faunas, respectively, were prevalent.

T. C. C.